

Response

Applicants, through their attorney, respectfully request the Examiner to reconsider and withdraw the outstanding rejections of the claims for the reasons set forth below.

Support

Applicants have amended claims 1 and 6 to specify that the esterified copolymer is derived from an alpha, beta-unsaturated dicarboxylic acid or anhydride. Support for these amendments is found in the claims themselves as well as on page 5, line 31 to page 6, line 13 of the specification.

No other elements of the claims have been changed.

Remarks

The Examiner rejected claims 1-17 under 35 U.S.C. 103(a) as being unpatentable over Lal (EP 0626442). The current rejections are based solely on Lal.

Applicants submit that the 103(a) rejections based on Lal are deficient as the cited reference does not teach all the elements of the present invention, the Examiner has failed to make a proper obviousness rejection under 103(a), and the Examiner has used impermissible hindsight in her evaluation of the reference. Applicants also submit that even if the rejections are maintained, the presently amended claims are commensurate in scope with the data in the specification which shows a surprising result which is not expected and could not be predicted from the teachings of the reference.

I. Lal does not teach ACL.

The present invention specifies a fuel composition that contains a low temperature operability composition comprising an esterified copolymer of an alpha-olefin or styrene and an alpha, beta-unsaturated monocarboxylic or dicarboxylic acid or anhydride, wherein the copolymer of (B) is esterified with a mixture of two or more alcohols having 5 to 28 carbon atoms wherein the mixture of the two or more alcohols has an average carbon length (ACL) of 10.4 to 11.6 on a weight % basis.

The Examiner concedes that Lal does not provide any teaching on ACL and has cited no other reference in making the rejection. However the Examiner still concludes the present claims are obvious over Lal. The Examiner is of the position that it would have been obvious to one skilled in the art to vary the ACL as it was known at the time the using the same

mixtures would have had an average carbon chain length falling within the realm of the presently claimed range of ACL. Applicants respectfully disagree.

While the Examiner has not explicitly stated it, Applicants assume the Examiner is supporting her obvious rejection using rational (A) described in MPEP §2143 (combining prior art elements according to known methods to yield predictable results). However, MPEP §2143, states in part (*emphasis* added):

To reject a claim based on this rationale, Office personnel must resolve the *Graham* factual inquiries. Then, Office personnel must articulate the following:

- (1) a finding that *the prior art included each element claimed*, although not necessarily in a single prior art reference, with the only difference between the claimed invention and the prior art being the lack of actual combination of the elements in a single prior art reference;
- (2) a finding that one of ordinary skill in the art could have combined the elements as claimed by known methods, and that in combination, each element merely performs the same function as it does separately;
- (3) a finding that *one of ordinary skill in the art would have recognized that the results of the combination were predictable*; and
- (4) whatever additional findings based on the *Graham* factual inquiries may be necessary, in view of the facts of the case under consideration, to explain a conclusion of obviousness.

The Examiner has failed to meet parts (1) and (3) of the required findings. Specifically, the Examiner has failed to show where the prior art teaches ACL. The Examiner's statement that it would have been obvious for one skilled in the art at the time to vary the ACL ignores the fact that the reference provides no teaching on ACL or its impact in performance. The MPEP makes it clear that mere conclusory statements are insufficient to support a conclusion of obviousness (see MPEP §2142 and §2413). As the Examiner has provided no reasoning or basis as to how the person skilled in the art would have known to vary to the ACL, Applicants respectfully ask the Examiner to remove the current rejections based on Lal.

Further, as to item (3), the Examiner has not provided any reasoning or basis for how a person skilled in the art, assuming they would somehow know to vary the ACL, would recognize and/or be able to predict the result of that action. Lal, as the Examiner concedes, provides no teaching on this point. As the Examiner has provided no reasoning or basis as to how the person skilled in the art would have recognized the at the results of varying the ACL would be predictable, Applicants respectfully ask the Examiner to remove the current rejections based on Lal.

II. The Examiner is applying an improper obvious to try standard.

The Examiner is of the position that it would have been obvious in view of Lal to vary the average carbon chain lengths. The only support the Examiner provides for this conclusion is a statement that it was known in the art the using the same mixtures would have an average carbon length falling within the realm of the presently claimed ACL. In addition to comments below on this point, Applicants submit that the Examiner is applying an improper obvious to try standard. MPEP §2145 states in part: "An "obvious to try" rationale may support a conclusion that a claim would have been obvious where one skilled in the art is choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success." Here, Lal does not provide a finite number of identified, predictable solutions, with a reasonable expectation of success. In fact, Lal provides no relevant solutions at all as it is silent on ACL. Furthermore, MPEP §2144.05 states in part (*emphasis added*):

*A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977) (The claimed wastewater treatment device had a tank volume to contractor area of 0.12 gal./sq. ft. *The prior art did not recognize that treatment capacity is a function of the tank volume to contractor ratio, and therefore the parameter optimized was not recognized in the art to be a result- effective variable.*). See also In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) (prior art suggested proportional balancing to achieve desired results in the formation of an alloy).*

In the present invention the ACL of component (B) has not been recognized as a result-effective variable by the prior art. Lal provides no teaching regarding the impact of the average carbon length of the mixture of alcohols used in the esterification reaction. Therefore, the optimum ranges of the variable, such as the range in the present claim, cannot be said to be the result of routine experimentation, and thus obvious. For these reasons, Applicants respectfully submit that the current 103(a) rejections are improper and ask that they be removed.

III. The Examiner is improperly transforming the teachings of Lal.

The Examiner is of the position that Example B-9 of Lal falls within the claims of the present invention. Applicants respectfully disagree.

Applicants note that Lal has no teaching regarding the ACL of the mixture of alcohols used to prepare its Example B-9 and that Applicants calculated the ACL for B-9 based on information in the reference. Applicants further note that the present claims require an ACL of 10.4 to 11.6, a relatively narrow range that is only 1.2 units wide. The difference between the end point of the claimed range (11.6) and the ACL value of the closest examples in the reference calculated by Applicants (11.7) is 0.1 units, of over 8% of the entire width of the claimed range. This is not an insignificant difference and is equivalent to a claimed range of 1 to 100 with a comparative example at 108.

The Examiner has provided no basis for finding a material prepared from a mixture of alcohols having an ACL of 11.7 is equivalent to a mixture of alcohols having an ACL of 11.6. Indeed, Lal provides no such indication. Applicants submit that the difference between 11.6 and 11.7 is significant if for no other reason than the fact that the difference between the two values represents a significant percent of the width of the claimed range. Example B-9 of Lal has an ACL value outside the range of the present invention and so does not fall under the current claims.

IV. The data in the specification is commensurate in scope with the claims.

Whether or not the Examiner finds the arguments above persuasive, Applicants maintain that the present invention shows an improvement in performance not taught by Lal, nor reasonably expected or predictable from its teachings. The data provided in the specification shows this unexpected performance.

The Examiner has stated the position that the data in the specification is not commensurate in scope with the current claims with regards to the esterified copolymer of an alpha-olefin or styrene and an alpha, beta-unsaturated monocarboxylic or dicarboxylic acid or anhydride. Applicants respectfully disagree.

MPEP §2145 states in part (*emphasis added*):

When considering whether proffered evidence is commensurate in scope with the claimed invention, *Office personnel should not require the applicant to show unexpected results over the entire range of properties possessed by a chemical compound or composition*. See, e.g., *In re Chupp*, 816 F.2d 643, 646, 2 USPQ2d 1437, 1439 (Fed. Cir. 1987). *Evidence that the compound or composition possesses superior and unexpected properties in one of a spectrum of common properties can be sufficient* to rebut a *prima facie* case of obviousness. *Id.*

For example, a showing of unexpected results for a single member of a claimed subgenus, or a narrow portion of a claimed range would be sufficient to rebut a *prima facie* case of obviousness if a skilled artisan "could ascertain a trend in the

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exemplified data that would allow him to reasonably extend the probative value thereof." *In re Clemens*, 622 F.2d 1029, 1036, 206 USPQ 289, 296 (CCPA 1980) (Evidence of the unobviousness of a broad range can be proven by a narrower range when one skilled in the art could ascertain a trend that would allow him to reasonably extend the probative value thereof.).

In addition to providing examples across the claimed range, including comparative examples outside of the claimed range, the inventive examples in the specification are derived from a representative copolymer, specifically a maleic anhydride-styrene copolymer. There is no reason to believe that copolymers derived from alpha-olefins instead of styrene would impact the importance of the ACL parameter, nor is there any reason to believe the use of other acids would change the results.

Furthermore Applicants have amended the claims to specify that the esterified copolymer is derived from an alpha, beta-unsaturated dicarboxylic acid or anhydride. The inventive example uses a dicarboxylic anhydride representative of such materials. Therefore, in light of the present amendments and for the reasons stated above, Applicants respectfully submit that the present claims are commensurate in scope with the data in the specification and ask that the claims be allowed.

Conclusion

For the foregoing reasons it is submitted that the present claims are novel and unobvious over the cited reference, and in condition for allowance. The foregoing remarks are believed to be a full and complete response to the outstanding office action. Therefore an early and favorable reconsideration is respectfully requested. If the Examiner believes that only minor issues remain to be resolved, a telephone call to the Undersigned is suggested.

Any required fees or any deficiency or overpayment in fees should be charged or credited to deposit account 12-2275 (The Lubrizol Corporation).

Respectfully submitted,

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